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From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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WRITTEN OPINION  
(PCT Rule 66)

Date of mailing  
(day/month/year) 15.11.2004

Applicant's or agent's file reference  
AMS.P52114WO

REPLY DUE within 1 month(e)  
from the above date of mailing

International application No.  
PCTGB 03/04935

International filing date (day/month/year)  
13.11.2003

Priority date (day/month/year)  
15.11.2002

International Patent Classification (IPC) or Bull. national classification and IPC  
G01V1/32

Applicant  
WESTERNGECO SEISMIC HOLDINGS LIMITED et al.

1. This written opinion is the second drawn up by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application
3. The applicant is hereby invited to reply to this opinion.
 

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 15.03.2005

Name and mailing address of the international  
preliminary examining authority:



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**WRITTEN OPINION**International application No. **PCT/GB 03/04935****I. Basis of the opinion**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

**Description, Pages**

1-16 as originally filed

**Claims, Numbers**

1-19 as originally filed

**Drawings, Sheets**

1/11-11/11 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language, which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos..  
☐ the drawings, sheets:

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

**WRITTEN OPINION**International application No. **PCT/CB 03/04935****V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	NO: 1-10
Inventive step (IS)	Claims	
Industrial applicability (IA)	Claims	

**2. Citations and explanations****see separate sheet**

**WRITTEN OPINION  
SEPARATE SHEET**

International application No. PCT/GB 03/04035

**Re Item V****Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: GB-A-2 030 400

D2: WO 00/55648 A

D3: US-A-5 408 441

The previous objections are maintained in unchanged form. No convincing arguments or amendments were provided by the applicant.

The arguments concerning D1 presented by the applicant are not convincing for the following reasons: The subject-matter defined in the independent claims 1 and 11 is only directed to a method and corresponding apparatus for matching the response of two different instruments (hydrophone and accelerometer). According to this definition it is without any importance if D1 is related to the determination of vertical position or not. The only important fact is that D1 can be read on the definition given in claims 1 and 11. It has no relevance, if the general teachings of D1 are directed to seismic data acquisition (which is even not defined in claim 1) or to the solution of other problems. As long as D1 provides all features defined in the independent claims 1 and 11, it must be considered as taking away the novelty of these claims.

With respect to D2, the attention of the applicant is drawn on the following passages in D2: p. 3, l. 17-22 and p. 4, l. 19-24 which clearly show that in D2 the instrument response of the second instrument is corrected for in order to make the records from both instruments comparable (matching one instrument response to the other). This takes also into account that the instrument response is in reality not a flat response over the whole frequency range which could be corrected for by simple scaling.

In addition, reference is made to the teachings of D3, also cited in the search report, wherein the same problem is addressed. According to the teachings of Fig. 13, Ref. numerals 1308-1314 and the description c. 10, l. 20-39. In D3 the response of one of the records is not only modified by a calculus operation (integration or differentiation) but also modified by a filter operation wherein the filter characteristics are derived from the other instrument output (c. 10, 20-39).

Finally, the applicant is also informed that the claimed subject-matter is part of the basic

**WRITTEN OPINION  
SEPARATE SHEET**

International application No. PCT/GB 03/04935

knowledge which is taught in the every student course of seismic signal processing. ~~Differentiation of integration of a record from an instrument like a geophone, a velocimeter, an accelerometer or a hydrophone, in order to make it comparable to the record from the second one, and correcting in addition the transfer function (impulse response) of the instrument with the transfer function of the second instrument is nothing new or inventive.~~

The additional features defined in the dependent claims are also standard procedure, well-known to the skilled man.

The present application does consequently not fulfill the requirement of Art. 33 PCT. The applicant is informed that without any significant and convincing amendment a negative IPER will be the next step of the procedure.

**When providing amendments, it is requested to clearly indicate the basis of every amendment in the originally filed application documents.**

The applicant should in addition introduce reference signs in the claims, and use a correct two-part form, at least in the independent claims.